

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

Date: November 8, 2010
Segment: Asset Liability Management Workshop
Host: Chairman George Diehr
Guests: Joseph Dear, Farouki Majeed, Michael Schlachter, Andrew Junkin,
Allan Emkin

George Diehr:

Okay. The purpose of the Asset Liability Management Workshop is to review and possibly modify the CalPERS strategic investment allocation policy considering liabilities of the system and reflecting the unique tolerance for risk as defined of the CalPERS Investment Committee.

So we're here to provide input to an allocation framework that we believe will best address the key investment issues and risks.

And, before turning it over to Joe, I'd just like to say this certainly is a very important workshop but it's a lot more than tip of the iceberg, but there's a lot more that comes after it and with it. I'd also like to note that I think the materials are great that the staff prepared. I appreciate the detail and the depth you went into.

There's a paper in here which argues that the asset allocation process ranges anywhere from 40% of explaining return to over a 100%, which is I find rather interesting. But, when you figure the costs of the overhead of making decisions, then it explains why it goes over a 100%. But, after this, following this there are large questions about sub-asset allocations, our long term view, what should our philosophy be on that. I think we have one, but I'm not sure if it's fully implemented. And, along with being in this for the long term, there's also a need for to be more, I think more nimble and flexible. In the sub asset allocation area there is global public equity, how much in US, how much in international, how much in merging markets. And we had a presentation on merging markets being a bright light, but then you no sooner see some presentation than you see the counter question about whether that's all been discounted into the market already. There are decisions about alternative passive investing schemes as we heard from Arnett called the Fundamental Indexing Scheme. And then there are issues of hedge funds come under that same category. In real estate we have decisions of core versus opportunity. We've already made some steps there. And, also, leverage. We're looking through all asset classes.

We should, I believe you all agree, have a very long term perspective on our investing. But there are questions I think such as, you know, in practice how long term are we really looking in our investments. For example, do our compensation systems for both our internal and external staff properly reflect the long term view that this fund has. So that's something we need to look more at, and we'll be looking at it at the off-site in January.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

There's a question we had, we heard from Professor Lowe from MIT, can we, can we move BETA? And, related to that, should we be considering more broad economic impacts of our investing decisions. Should we look at job creation and so on, that would benefit not just us but the economy, and then feed into other investment returns?

At the same time that we have this need to have a long term view, I think, and I think most would agree, the markets are still not completely stable, there will be opportunities, there will be anomalies, there will be opportunities to exploit those anomalies, and we need to be, I think, a little more flexible and nimble in order to take advantages of those.

So, we're obviously not going to solve all of these problems today. It's a big job ahead of us, but we.

J J Jelincic:

But we're scheduled for two days.

George Diehr:

Oh, that's right. Okay. We'll get to it by noon tomorrow. We have already considered some of them as noted. We made some progress. With that introductions let's. Oh, one other thing, if you have questions, hand them to Sharon over here at the table and we'll address them at around the break, probably before the break at 2:15, or right after the break, one or the other. So, questions, just turn them in and we will get to them. With that, Joe Dear.

Joseph Dear:

Thank you, Mr. Chairman and members of the board. I'm very excited about the work we're going to do today and tomorrow, in one sense is the culmination of lots of preparation that's been going on this year. The chairman outlined some of that, but just to refresh, in March we started with the review of the role of the asset classes. We spent several sessions in May and June on capital market assumption, and these are key drivers of the portfolios that you'll be asked to look at and select from tomorrow. These assumptions really do control a lot of how things look once you set the risk appetite for the total fund. We continued this discussion at the board off-site in July where we heard from Professor Lowe, as the chairman mentioned, and from the candidate pension plan. We did a final review of the capital market assumptions and between March and September we reduced our expectations particularly for fixed income investments in this low interest rate environment. We did some further work in October to set up the discussion, looking at the critical decision factors that will be discussed this afternoon here. And then we're doing the asset liability workshop.

The success of today and tomorrow really depends on the interaction here. We've got this whole book and there's this tremendous amount of information

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

and material in here. When Farouki does his presentation, and others, we'll try to illustrate where we've made assumptions, and the importance of those assumptions in terms of driving the outcomes and setting the parameters. We hope to take from the workshop a guidance from you on overall risk level for the portfolio. And a selection of the portfolio which best reflects the mix of expected return and acceptable risk. And, from that, make a policy recommendation on the asset allocation in December, and then that will more help inform the discussion on the chief actuarial Allan Milligan will conduct in February when we set the discount rate, when you set the discount rate for the whole fund.

Critically today one of the questions is we're asking you to look at, after we have a discussion of the objectives which Farouki will do, and then the economic scenarios. These are how to manage these portfolios in different economic circumstances is one of the lessons of the crises we're trying to apply in this work. We'll have presentations from the senior investment officers on the roles of the asset classes. And, you know this senior investment officer staff. We've had some lively discussion about roles of asset classes, and then your guidance with respect to selecting an alternative classification.

In one sense, the alternative classification is not a big deal because underneath it are the asset classes that you're used to seeing. But, in another sense, our request to have you select a different framework, an alternative classification is an attempt on our part to help move risk to the central focus of what we do, away from just return. But, really thinking about constructing this portfolio around the elements of risk to which it is exposed. And, help us in the staff flow in day to day work, the tactical allocation and dynamic allocation and, ultimately on the strategic asset allocation. Try to incorporate the lessons we've learned from the crises, apply them to this large portfolio and come up with a portfolio which will survive in all types of investment environment weather, if you will.

So, in that sense the discussion today represents a big step. But it is not the final step. This is a journey that we're taking as we try to apply the lessons of the crises to bring the best improvements of portfolio theory to bear on this portfolio and then to apply them day to day going forward. So it's a big step forward, but it's not the end, it's really the beginning of the new way of approaching the extremely important decision of how do we deploy our assets over the long term in these capital markets and what level of risk are we prepared to expose ourselves to in pursuit of that return objective.

So, that's a little bit of preview of today and tomorrow in what's coming. And, if there are no questions, I'd like to turn the microphone over to Farouki Majeed, the senior investment officer for Risk and Asset Allocation. And, Farouki will be joined by our outside consultants from PCA, Allan Emkin, and from Wilshire, Andrew Junkin, and Michael Schlachter.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

And, Mr. Chairman, I know you, I don't need to say this, but I will. The members, at anytime, should feel free to raise a question at any point along the way. Thank you.

Farouki Majeed:

Thank you, Joe. Good morning Mr. Chairman and members of the Investing Committee. Before I proceed I'd like to recognize and thank the team members of the Asset Allocation Unit who worked very hard to put this together. They've been extremely resourceful in throughout this year. I mean, you have conducted a variety of discussions in front of the investment committee. So, to start with let me recognize Jeanette Aybui who is our main assistant who really put the whole package together. Rick Roth, who is seated here, the head of our Risk Unit. He's done much of the modeling work on the selection process. Ray Venner, who has done much of the optimization work on the asset ...as well as Jay Jeong, who has worked both with Ray and Rick. And Lon Johnson, who has been here with us one year now and is a great addition for our team and has produced some good analysis on the role of asset classes and so on. So I would just like to recognize and thank our team. With that, proceed.

That's the content of our. Actually, I press over there. It's not working for some reason. Okay. There we go. The objectives of the workshop as Joe outlined is a decision on the alternative asset class framework that we have presented to the investment committee. That will be the, the committee will have a chance to make their position this afternoon, hopefully. And then tomorrow you will have an opportunity to select the portfolio that you might want to choose as a strategic asset allocation going forward.

The second one is a fairly difficult and challenging objective, at this point in time, considering both the funded ration that we are starting at, which is inching up closer to 70%, a lower expected return going forward that we have, and the growth in liabilities that we experienced. So, all of those things make that objective particularly difficult in a short timeframe.

The next steps, based upon your selection tomorrow and any corrections and instructions we receive from the committee, I'll be coming back in December with the final recommendation on the asset allocation policy. They will review the policy for the strategic asset allocation in Q-1, as well as the active risk budget for implementing the portfolio.

And then, as Joe mentioned, in February you will have a chance to review and accept the actuarial assumption rate.

There are a number of objectives here, obviously. We want to improve the funded ratio. We want to try to minimize the surplus, which is the difference between assets and liabilities. Currently that's negative. And, so, to try to

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

minimize that volatility, also appears now to be a fairly difficult task. Asset volatilities is very high, liabilities are small, so it's a fairly challenging task.

Question from panel member:

In looking at your crystal ball, when does this surplus begin to surface?

Farouki Majeed:

You have to have a long time horizon as the chair to see.

And these objectives are sort of framed in the decision factor framework that Rich will describe later on. In terms of our history on this issue, the liabilities in particular have been growing at a fairly steady clip over 8.5% since the early 2000's. And the assets certainly over that period have not grown and that rate, which is why you see a decline in the funded ratio. So, there was a time when the fund was over a 100% funded, but right now we are, as of June, 65%. The value of the fund now has increased probably to about 218 Billion, or so, as of the most recent statements. So, you're sort of inching your way towards 70%.

Okay. So, there are a few different approaches that you can take to try to solve the asset liability problem. Some, one approach would be to entirely match the liabilities. We see that the proxy for your liabilities is about 30% nominal government funds, which is on treasuries in 70% inflation rate bonds. If you were to do that right now the expected return for that portfolio would be about 3.5% or so. So then you would lock in all your unfunded liabilities and then contributions will have to do the heavy lifting in terms of trying to get to a full funded ratio. So it's not a feasible approach at this point in time.

The second is to look at an entirely return seeking portfolio. This primarily is a equity centric portfolio of where you have diversification among a variety of risky assets in order to try to reach a return target of about 7.5, 8% or so, which is the average for most funds. The problem with that, even though it increases the prospects of improving your funded ratio the downside risk is fairly high as we have seen from a recent period. Now, most funds since about the 1990's have drifted to a return seeking portfolio, most U.S. pension funds. You could also conduct a mix of liability matching plus a return seeking portfolio concept. The liability matching portfolios would primarily be in tapes and inflation linked assets. Those are your two key risks, and they would sort of hedging portfolios. And then you will have a return seeking portfolio that's a mix of a variety of risky assets.

We think the alternative asset classification that we propose enables that kind of a framework going forward, should the board consider going in that direction.

Moving on to the role of asset classes, asset allocation. I think as you alluded to, Mr. Chairman, the variety of studies in this, what I really wanted to point out was that the policy allocation decision that the committee makes is the key

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

determinant of long term returns. So this is the link between returns and the policy asset allocation. And, 90% or more of the variation of the actual returns are explained by the policy. And the third bullet is that the asset allocation policy, your policy really explains roughly about a 100% of the active actual returns. So, in other words, active implementation has not demonstrated to have added much to the policy return. So, in terms of point one and three, that's been the experience of CalPERS as well.

The 40% is if you were to compare funds which have different asset allocation and implementation sort of policies, then 40% for cross funds is explained by the policy allocation. But, for a given fund, point one and point three are applicable for CalPERS as well.

In terms of our historical asset allocation ...

J J Jelincic:

Can I ask you some different question of the Wilshire folks? You've compared different pension plans. Does that 40% number seem reasonable in terms of how, or, have your clients so bunched up that it's hard to say?

Michael Schlachter:

Yes. I think it's more than 40%. I mean, when I saw the 40% on this chart I was kind of surprised it's so low. When you think about it, I mean, there's some plans, some plans might have five managers, a very small corporate plan might have five or six managers. And then you might see an individual manager's causing big differences. But when you have any kind of diversified plan of any reasonable size and they have five or six U.S. managers, a handful of non U.S. managers, a couple of managers, the manager impacts essentially average themselves out. And asset allocation drives the big difference between, among all of our various clients. So, the 40% number, again, I'm shocked it's so low. I would have thought it was going to be a match at 90% kind of range.

Farouki Majeed:

So, I agree with Michael. I think the reason it's 40% is because the sample included mutual funds as well. And, so, they would bring in, well, some deviation there. But, if you were to compare CalPERS and CalSTERS and other like pension funds, that number would be much higher.

Michael Schlachter:

And, and, in any \$10 Billion dollar state pension plan it's going to be a 100% asset allocation.

Farouki Majeed:

Yeah.

Michael Schlachter:

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

Everything else is conversation.

Farouki Majeed:
Right.

George Diehr:
Farouki, I just note, the footnote says the article was 2007. The article says 2000. Is? Which?

Farouki Majeed:
That's, then it's my error. I apologize.

George Diehr:
Is it 2000? So it's that old?

Farouki Majeed:
Yeah, it's 2000.

George Diehr:
So it hasn't, I mean, or, not that it isn't still relevant. But, huh.

Farouki Majeed:
It's 2000.

George Diehr:
Yeah. Yeah.

Farouki Majeed:
The first article is '91, this one is 2000. Thank you for catching that small print.

George Diehl:
I wonder what, you expect that they were redone today for this, the following decade that we would find that that has changed with, to these?

Farouki Majeed:
On one and three you will not find any difference. But, on two you might.

George Diehl:
Yeah. Yeah.

Farouki Majeed:
So, moving onto the capitalist historical asset allocation. What I'd like to point out here is that the most significant change in the CalPERS asset allocation policy occurred, let's say, in 1995 where the equity allocation went up by roughly about 14%. And the fixed income allocation came down by what, a similar percent, 15

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

or so. So that's the significant shift of the portfolio. From a more balanced portfolio to more of a equity tilted, equity centric portfolio.

And then since that time from 1995 onwards we have kind of had a more or less unchanged equity allocation. Some of the other changes that have occurred, the increase in the private asset classes from about 12% in 1993 to about 20% in '08. So, that's largely due to an increase in AIM from 4% in 1993 to 14% in '09. And a lot of those increases in the AIM allocation was driven by the commitments in the allocation itself. So, that in '08 and '09 they had to be increased based upon the path of the AIM portfolio.

Now I asked myself the question, what if the fund had stayed unchanged with the 1993 asset allocation? If we had not made any changes along the way, the return would have been 8.13%. That's slightly higher than our actual return of 7.57% for the same period. That's starting from January of 1994 through October. Oh, obviously, because equities have had a pretty rough period during this time. And the standard deviation also would have slightly low.

With that, moving on to some of the recent changes in the asset allocation, in the '07 asset allocation the board made a few different changes. One was moving to a global equity allocation instead of what we previously had was a domestic and an international allocation. So that moved the equity portfolio to more of a market cap way and increased the international developed markets as well as the emerging market allocations relative to the U.S. allocation. So the U.S. allocation came down to 45%. And this sort of aligned with the sort of growth prospects that you see now in the global dynamics. We also introduced the inflation linked asset class with those four different components with a level of risk that the board selected was more or less the same as the previous portfolio.

Okay. Proposed change in 2010 in the alternative asset allocation. Primarily, as Joe pointed out, we are trying to, and it's really a shift in emphasis in the framework. That we are beginning to look at asset classes more in a risk framework and the macro risks that the assets and liabilities are exposed to. So, from that point of view we think the key risks are growth, inflation and rates, you know, the real rates. So, we are proposing to classify the assets primarily in those three brackets. And then you have two additional classes for real assets and global fixed income as income.

Priya Mathur:
May I ask a question?

Farouki Majeed:
Yes, Ma'am.

Priya Mathur:

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

I noticed that we are very clear, explicit about equities and fixed income being global. But, private equity and real estate are also global. Is there a reason why we're sort of differentiating, or, we're not specifically calling that out, or it's just sort of the way the terms have evolved?

Farouki Majeed:

I think it's the way the portfolios have evolved. Now, I think Curtis probably can address the fixed income question. We have about 2% of the total funding none, huh, in international fixed income. But our fixed income portfolio is largely, is biased towards the U.S. Any?

Priya Mathur:

And in terms of private equity over ...

Michael Schlachter:

Go ahead. I'm sorry.

Priya Mathur:

No, no, I'm sorry. I just wanted to understand if that was, if there was a real difference in the way we manage portfolios because of, if that reflects a real difference in the way we manage the portfolio?

Farouki Majeed:

Primarily maybe also because the role of the fixed income portfolio, you're targeting a higher than a market in terms of the duration. So it's a, sort of slightly longer duration sort of a fund that is tilted more towards U.S. based.

Michael Schlachter:

I think it's a naming issue.

Priya Mathur:

Okay.

Michael Schlachter:

I mean, global equity with the 2000 shifts to the no home country biased portfolio is truly global equity in that it recognizes the market capitalization of the entire planet. Global fixed income has non U.S. exposure, but it's a largely U.S. portfolio with some non U.S. exposure. I would argue that, I believe, that I think AIM is, as non U.S. focused as fixed income if not more so. So you could certainly call it global, if you like to, but the word global on the fixed income portfolio doesn't mean it's like global equity where it's truly borderless, essentially. But that's as important to have the fixed income area as it is in more risky assets.

Farouki Majeed:

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

We will probably address that question with a little more detail in the afternoon session when the SIO's are here. I will note to do that. But if you were to look at what is a doable fixed income index, for example, and look at our portfolio, it's quite different.

Priya Mathur:

Okay. Did you, Allan was, sort of was indicating ...

Allan Emkin:

Yes. Just quickly. On the real estate side there are a whole series of tax and legal issues that make it a much more complex to invest globally in real estate. And, so there's some good investment reasons why it's not truly global. And, on the private equity side it's just the private equity world really grew up in the United States, and that's where most of the action has been historically and the globalization of that is really just starting and it really hasn't even touched yet the emerging market, it's primarily been Europe.

Priya Mathur:

Oh. Okay.

Joseph Dear:

I think that's a helpful, all that's a helpful perspective. The indexes for global equity, global fixed income, were very good. They're settled, they're well known, and it's relatively easy to shift a portfolio, and buy a portfolio, it looks like the indexes decide where to deviate from that. There's no equivalent quality to index in the private equity or real estate side. And, as Allen said, the markets are very different. I mean, Japan has a very liquid public equity market, and good luck trying to do private equity in Japan. Right? I mean, people have tried. Chinese venture capital was the rage in the middle 90's. Very few people made any money from that. So, these markets and these approaches are different levels of maturity and opportunity depending on where they, where you're looking.

Farouki Majeed:

Okay. So, moving to the next slide.

Louis Moret:

Excuse me for a second?

Farouki Majeed:

Yes.

Louis Moret:

Where does agriculture or water fit in, or don't they?

Farouki Majeed:

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

I'm not sure, currently the, probably is a, is a stray part of the real estate policy as it currently exists. I think we apply more of that to the forest land.

Louis Moret:

I was thinking this though. Is just water and agriculture, or, isn't it to be considered?

Farouki Majeed:

Not as a separate allocation at the policy level. But, at the implementation level I'm sure we have exposure to water assets in our global equity portfolio and, and so on, and perhaps in infrastructure. But, it's not a, we're not targeting a certain percentage of our policy towards those sectors.

Louis Moret:

Water is pretty important.

Joseph Dear:

Well, we have a, we have exposure to water storage assets in an infrastructure fund run by CIM, which is in the ILAC Program. Agriculture is currently in the real estate program. The principal exposure we have there are the vineyards. But that's fairly large. Was it a \$200 Million dollar commitment? And, part of the discussion about inflation protection is the role of commodities and other assets in terms of protecting against inflation, in terms of the role of the portfolio. So there's some already in, and they fit within the current framework the way I indicated.

Farouki Majeed:

Dr. Mir (sp?), I would also say that the main focus of the discussions today and tomorrow is around the policy portfolio, which is the one that people chose. But, then, your question gets to some of our implementation strategies. And these are typically addressed through the ...

Louis Moret:

No. My question is, you have forest land. You have forest as a classification. And I happen to think water is more important than forest land, period. That's all. And, you know, you guys do whatever you want to do, but come on. Water and agriculture I think is pretty important more than forest land. That's all. You know, and you just blow right past it. Like it doesn't matter. Well, it does. Anybody want to debate that, that's fine. Water is not important? Tony? Come on.

Tony Oliveira:

Well, Lou is right. However, so is Farouki in that what will naturally progress more, sooner than later, is that Joe and I talked a little bit this morning about a report that came out of the series group on the risk of water and/or the lack of risk will end up being one of the major risk factors for every investment that's made in the world from now on. I don't care if it's public equity or private equity

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

or real estate, the water and the resources of water will continue to merge. And I would say what will happen to us probably over the next three years, because Australia has already taken a position in some of their investment funds too, invest directly into agriculture is, I think, I won't be here, but as it progresses on agriculture will move slowly to the top. It is part of, when you look at infrastructure, one of the major plays, of course and, if infrastructure throughout the world and certainly throughout the United States with the ability to recognize and protect the resource, not the commodity, but the resource of water. We see the problems that we're having in California right now because of a lack of water. So I think Lou's point is duly noted. And that we'll just have to be well aware of that as we go forward that it will be a major component through inflation link or whatever we're going to put that through infrastructures, water and ag. will emerge through that.

Farouki Majeed:

Maybe what might address your concerns is something that we are working on is the impact of climate change on strategic asset allocation. This is a project that CalPERS along with 13 other U.S. and international funds is working with ...at the moment to come up with a report. We have some preliminary sort of findings, and what's come up there is that in the near time it does not affect strategic asset allocations so much in term, because you can't get at how it impacts interest rates or inflation. But, there's clearly a recognition that it impacts the way you implement your asset funds. For example, global equities in investing in all these global companies, they're going to be affected by long term climate changes, similarly in commodities and agriculture and so forth. So, I think that the point that you are referring to perhaps will get addressed from this point of view and we'll have an opportunity to present and discuss this to the committee at some point in Q-1. I imagine.

George Diehr:

It seems to me that the asymmetry here is forest, forest land. That one, that one might, if you stop and think about it a minute it kind of sticks out. There's nothing else like it in our asset naming. I mean, I think shopping centers are more important than forest lands. So, you know. But we don't have a shopping center category. And, so maybe we ought to, maybe that ought to go away and it ought to just become part of one of the others. I mean, you know, water, gold, any kind of specificity. You know, like that. It seems. I think it maybe that there was, it was once in real estate and then we moved it into the ILAC, and so it got a name.

Farouki Majeed:

Maybe we just call the whole real assets Category One, then, sort of not get into the ...

George Diehr:

Yeah. Cause we're not going to make a separate allo ... I guess we do in our policy, but not here.

CaIPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

Joseph Dear:

We're sort of getting into the trees on this one. We're trying to get back up to the.

Farouki Majeed:

The point I ...

Joseph Dear:

I think they could go around. Farouki, I think the controller had ...

John Chiang:

Actually, this is the trees. But, it's something for later on, because we're talking about asset allocation versus risk allocation, and later on, right? We don't have to address this later on? I'd like better disclosure of what risk entails. Right? If we go to a new allocation methodology, what's covered under risk? Where you've got transparency, you're got interest rate, you've got currency, you've got.

J J Jelincic:

...in times.

John Chiang:

Yeah. You know, water. So, if we switch over, we ought to think about what's not being covered. And, frankly, how we address that.

Farouki Majeed:

Okay. That's not a. Thank you very much for your comment. So the. Yeah. We need to, I need to move this along. But the point of this slide was that, to just emphasize that risk allocation tends, particularly for equities, to be higher than the dollar allocation that we look at in terms of asset allocation simply because the volatility of the equity portfolio dominates the total volatility of the (indiscernible 00:34:56).

J J Jelincic:

Rick, what does RMS stand for:

Farouki Majeed:

That's our Risk Management System. That Rick runs. So, I'm just going to point, just a few things that we noted here as lessons learned from the global financial crises. I think the level of activities that we had in the portfolio led to, as you all well know, fairly sharp, brought on with the funds. There is now considerable discussion about DB plans and how they can be sustainably funded and so forth. A number of issues relating to actuarial discount rates, consider the gas fees under pressure to kind of potentially change that framework and so on. So, a number of issues have fallen out from that sharp decline in asset values. And, conventional risk diversification, we thought the portfolio was fairly well diversified in those terms, but the crises pointed out that we need to think about

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

diversification slightly differently and we think that the alternative risk classification that we propose will provide a framework for that, as, as Joe mentioned in terms of risk.

We did not have any strategic allocation to treasuries and nominal government bonds. And we will find that the treasuries do play a strategic role in the asset liability management framework. A normal risk return relationship ... will go through that in the chart in a little while. Liquidity and leverage emerge as very big issues. Allocations to private asset classes kind of were in (indiscernible 00:36:43) particularly in AIM because of the fall of the total fund assets. And, we had a number of issues in trying to address both leverage and liquidities. So, to move this along. Oh. Yes, sir.

J J Jelincic:

Farouki? Although we had no specific allocation to Govies, we obviously had some. How big was that on?

Farouki Majeed:

The fixed income, global fixed income benchmark has governments, conference, and ..., etc. And then the portfolio according to policy can implemented in a range relative to those comments. So, what I mean by saying that we did not have a strategic target was because we, you know, we had fairly wide ranges. So, it's not something that was observable from a total fund perspective. You can tell the role that it plays in the total fund.

J J Jelincic:

Yeah, but, how, how big of a Govie commitment did Curtis make?

Comment by male panel member:

In the order of \$10 Billion dollars or so. Roughly speaking.

Comment by male panel member:

Forty percent.

J J Jelincic:

Okay. Thank you.

Question by male panel member:

Farouki?

Farouki Majeed:

Yes.

Steve Coony:

I would like one question. Actually two, but. This is a very worthy compilation of lessons that we learned, some of which everybody learned, I think. Maybe that

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

hasn't been as well articulated as this. But, my first question is whether or not, and I can take the answer later, did we teach any lessons, good lessons during this crises? Are there things that we do that we ought to continue to do in terms of how we approach asset allocation? Obviously, there are things like diversification that seem to continue to make sense, but. And the other question is, if everybody learns the same lessons and acts on them, at least the conclusions you tend to come to from each of these lessons learned, won't we all, how do we perform better than our peers? I guess is my question. How, what are we going to do that's different from others that will end up both stabilizing, but also producing good returns?

Joseph Dear:

That's a, that's a wonderful, wonderful question. And I think to the first part what, what did we learn that might be instructive? Is partly what you're working on today and tomorrow. Because if we essentially stay with the basic plan we have, which is we don't expect publically traded stocks and bonds to produce a return sufficient at the level we think we need to provide financial stability, sustainability for this system, we have to look to other asset classes to produce that extra return, principally real estate and private equity. So, if one of the lessons of the crises is the illiquidity risk is such that funds are detoured from taking that course of action and go more conservative and we stick with our, the strategy we have, we will be saying we're applying a long term framework to our funding, our assets and liabilities, and maintaining the courage of our conviction that the strategy of the sport has developed over time is one that will work over time rather than pulling out. ... pouring into fixed income. Though a program that says we're willing to entertain the risks of equities, the growth risk, more precisely with greater depth and with some sense of the tools needed to mitigate that risk is another way of saying we're applying these lessons learned.

So I would say, Steve, not to abandon this long term perspective that we maintain is one of the principal lessons. The others are the going forward tools to shift to the risk framework we're proposing to understand with more precision the exposure of the portfolio to growth risk and the tools that are available from that. And, a more holistic look at the portfolio is probably the best application of that. And we've seen and you've heard from some funds we think of are doing leading work in that area as well as some theorists who are again developing tools that we can use. One of the things about the crises is, you know, some things changed in important ways. But, other things didn't. And it's separating those two out. Human nature didn't change. For example. Before and after. Market expectations of returns we think did become reduced after the crises because the nature of financial crises.

Farouki Majeed:
Question?

Steve Coony:

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

Just one. The last thought. And that is along those lines. One of the lessons learned here has to do with our overreliance on our over obsessive compliance with overall targets, numerical things. And I think in search of the new grail which was a formula from which we can make decisions based on risk I think we have to be careful about exactly the same thing. I think.

Joseph Dear:
Yes, sir.

Henry Jones:
And I was going to echo the same thing. And, that's okay. But this overreliance on quantitative miles and when we started this process, you kind of asked the board where their interest was in terms of going forward. And I recall we talked about qualitative areas of the model. And as I read through the information I didn't, it seemed like we're still heavily on the quantitative side. So as you go forward in this presentation, if you can call out where the qualitative impacts are I'd appreciate it? Because I really didn't see it move into more qualitative side versus all of the quantitative reliance again.

Joseph Dear:
Okay. Farouki?

Farouki Majeed:
Okay.

Tony Oliveira:
I'm sorry. I know you need to move on. But I just want to tag a contrary side to that for us. Is, one of the ways to manage risk and one of the things that I don't see here but I think it's just in, it's involvement here is having definitive policies and adhering to definitive policies. The contrary side to what Henry said could be used, and I think it's where Steve was, too. Is that it was the qualitative judgments sometimes that allowed people to get off of the quantitative policy that was set in place, say in real estate, the number of lots in an investment was not changed because of a quantitative decision, it was changed because of a qualitative decision. I'm talking about pensions in general. That it looks like a good deal. So, we have to build both sides into that as that we must have very strict policies and stay within that. And, if it's going to vary from that, then that's where I think it becomes to the qualitative side that rises to your level, Joe.

Farouki Majeed:
Maybe just two comments I can make in relation. Oh.

Henry Jones:
Yeah. No. And I certainly concur. And, but my qualitative approach is looking at it from the policy setting aspect of it, not from implementation. And I think that's

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

where the judgment went wrong is on implementation area rather than on the policy.

Tony Oliveira:
I agree.

Farouki Majeed:

So I think we're getting better at the execution and implementation in terms of factoring risk better into our positions. And now it's no longer an asset class decision. There's much more discussion across the fund in terms of the way individual portfolios within asset classes are structured and positioned, and the kind of risk that they are taking and so forth. So, there's better information sharing across. There is more emphasis on risk in terms of portfolio strategies, as well as implementation. So, the only purpose of the previous slide here was to show, the light blue line is the correlation of our global equities with treasuries. And, treasuries are the only asset classes that continue to maintain the negative correlation to equities throughout this period. And the asset classes you would see the three year rolling correlation spike up during the crises, and then sort of come down.

So I'll just move this along. These are actual CalPERS returns for ten years ending August 2010. Whatever, huh, what I would like you to note here is that over the past five and ten year period the risk return relationships kind of were reversed. So, low standard deviation assets, such as a global fixed income was the highest returning asset class. And higher standard deviation, or higher risk asset classes, such as international equity and U.S. equity had lower returns than fixed income. Now, one of the quantitative models question is that we always assume that higher risk assets will have higher returns. So, a risk premium is always available in the market for assuming risk. But, the thing to realize now is there could be periods in which that relationship does not hold, and that's happened a few times.

But, going forward, these are our assumptions. And, so we are assuming the normal relationships to hold over the next ten years. And that equities and other risky assets will have higher returns than bonds. And the red line that you see there is the sort of portfolios that will be presented to you tomorrow. We didn't arrange on the efficient frontiers. So.

J J Jelincic:

I mean, that's the classical assumption that obviously was wrong for the last ten years. What makes us think that the classical assumption is right for the next step?

Farouki Majeed:

Okay. So, there are a few things. One is, if you look at the starting conditions ten years ago. So, for example, if you were doing this exercise in 1999, for

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

example, one of the things that we have learned is that if you look at the valuation for equities and the yields being so low, one really has to question rather going forward. You would continue to expect equities of bonds. But, the textbook will tell you that that's what you assume. Right? Or, the financial tier would tell you that's what you assume. But, if you were at points that were what you might call bubble like conditions, then I think we need to recognize that. So, going forward from here we see that those conditions, the initial conditions, starting conditions are fairly normal in terms of work valuations. Yields, for sure, are certainly down and we are recognizing that. So the real question as going forward what kind of economic growth and earnings growth will you have? And there I think we are tempering our expectations slightly down. Saying that economic growth will be slightly below trend, and therefore, equity returns would be slightly below what expected in the past.

Michael Schlachter:

I think if I just add to that, maybe. The last five or ten years may have shown this reverse relationship between risk and return. But, the long term track record, if you look back over 60 or 70 years of experience with developed markets, has been that positive upward slope. The more risk you take, the more rewards you get over long periods of time. And, certainly over 20 or 30 year periods that relationship has always helped. There have been plenty of times, 2003 the NASDAQ bubble collapsed during the depression many, many times in any recession really in history. But that relationship is inverted for some short period of time, but it's always returned to that long term, the more that you risk, the more you return sort of framework. That is, for example, Dr. Sharp has been a long time advisor to this board at this meeting, actually. This is the first year he hasn't attended. But that was the basis of his Nobel Prize, basically, was that long term study of that relationship. And, so certainly there's plenty of academic experience, there's plenty of historical evidence that that relationship exists. But, like any historical record there are anomalies periods. And, it's much more likely that the last five years are an anomaly than that the entire history of economic theory is thrown out the window and everything has changed forever.

So, with that being said, I think you have to go with sort of a long term academic perspective, which is those who take risks will be rewarded over the long term.

J J Jelincic:

I realize it's very dangerous to believe politicians. But, if we listen to what they ...

Comment from panel member:

Company excepted.

J J Jelincic:

No. Well, I tell you what. There are 13 politicians on this board. And, anyone who denies that is, we'll deny that as well. But, we're looking at, at least the, well, across the globe we're looking at a reduction in the government

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

expenditures. We are also, you know, it's very difficult to believe that given the action of the Fed. that which, so the reduction in spending here should lead to slower growth. With the Fed. pumping money like they're going out of style, I really want to buy helicopter stocks because I believe he will show up with his hundred dollar bills. The, you know, the scenario of very slow or even negative growth and inflation can't happen either. And I think, you know, that's, we're looking at that anomaly going forward. So, given that anomaly should we expect this to stick?

Michael Schlachter:

I think it's a matter of timeframe. I think this relationship, if we can all somehow just wait 50 years and come back, with the intervening period from 2010 to 2060, this relationship will exist, just as it existed from 1960 to 2010. The question is, over the next few years, I mean, that could be an anomalies period as well. Your asset allocation group did some projections as to what various asset classes might do under inflationary or deflationary environments. We have some slides in our section in a few minutes which look at the role of individual asset classes. This gets back to the point of this new bucket system we're talking about for asset allocation, where each asset class had a specific role. And, if you are, as a board, honestly concerned, unanimously concerned about factor X, rather it's deflation, rather it's interest rate spikes, whatever it is, there are asset allocation changes you can make that can mitigate the impact of that over the short term. I don't think that we're going to have 50 years of deficits and 50 years of integrating paresis to come off of this period. But, could it happen over the next 18 months? Sure. So I think you need to separate. This relationship will hold. I guaranty it will hold for the next 50 or 100 years. But they're going to be short periods in which it will not. And the question is, can you maintain that long term perspective while still protecting yourself against that short term potential spike in the markets.

Farouki Majeed?
George?

George:
Go ahead.

Allan Emkin:

I think that's a completely legitimate concern. And, I believe the way it can be addressed is really is through tactical decisions which are based upon short term issues, as opposed to long term strategic decisions that is made here. And I think one of the most important decisions you can make will be how much flexibility you give the staff to implement strategies under your direction to take advantage of those short term variables. Because I agree with Michael, long term, we all agree with the equities will outperform fixed income, particularly when a ten year bond is yielding 260. Right? Very, won't be that hard to beat the ten year bond over longer periods of time. The question is, how do you take

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

advantage. In the short term they add value, and I think that's not for today's discussion, but I think it's a very important one for the board and the staff to have. How to add value at the margin.

Farouki Majeed:

So I think the discussion is pointing to what we are showing here is that to recognize the risks to the forecast that we had showed previously, is that we are, we are sort of assuming slightly below trend growth and sort of fairly even macro economic conditions in terms of inflation and interest rates to prevail in this period for the assumptions that we have. But the risks are, as Mr. Jelincic was pointing out, and these are in the words of the fair chairman, he said the economic conditions are unusually uncertain at this point in time. And, as to how they might be, we don't quite know.

So, should any of those other conditions that we just pointed out there, such as deflation, no growth scenario, or a low growth-high inflation scenario, or a low growth-low inflation scenario. Should those kinds of scenarios prevail with a higher probability, then the return assumptions that we showed you in the previous chart probably will be much lower. So that's the risk for the forecast.

This is just something that I pointed out before. That initial conditions, we need to get better at factoring this when we look at forward returns. And this points to what Allan said is, we are proposing that maybe we do an annual review of economic conditions and asset returns and so forth. Consultants do this every year they put it out. So we think we need to do that, at least on an annual basis. And, if we find that there are significant changes, or expectation changes, then we should bring that to the attention of the committee and perhaps review the asset allocation. So that's kind of a more dynamic framework.

This is the proposed alternative asset classification that we have put forward in front of you a number of times. And that's what we would be recommending this afternoon that the committee select.

Unless there are any questions on this, I'd like to just move on. And this is just a fairly intuitive framework for the alternative asset classifications that we proposed. Trying to recognize broad macro economic conditions in terms of inflation and growth and so on, and how various assets perform under rising and falling conditions.

So, to those factors Lorne might get into some detail on that later on. So we think the rationale for this alternative classification is attempts to group assets into these broad risk categories, a framework for diversification across these risk categories, a framework for possibly creating hedging portfolios and, also, for implementation on a more dynamic basis as Allan pointed out, should our evaluation of the conditions change. And, should at some point you want to consider a risk parody or so call levered (?) bond strategy having a nominal

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

government bond bucket as a separate asset class is something that might facilitate that.

One other thing that I wanted to point out is, this is important to bear in mind as well, is that the year requirements of the fund, the benefit payments in recent years has, as you can see, exceeded the contributions. And, I'm not sure what sort of contribution increases will be coming forth in the years to come. But, it appears that as we proceed, that gap might be even wider because CalPERS would become more and more of a gauging fund. So that's something that we need to pay attention to, but we don't want to be in a situation of having to be forced to sell assets to pay benefits. And, therefore, looking at the income part of the return is an important consideration for us going forward.

So, the point of all of this discussion then ...

J J Jelincic:

Can I? Can I ask Allan to comment on those cash flows? I mean, given that we've, act just like, given that we know contributions are going to be going up, partly because we're factoring in the losses from '08, '09, is that likely to continue to widen, or is it likely to narrow?

Allan Milligan:

I think it depends a lot on how many, what we see in the way of retirements. The unusually high number of retirements we've had in the last few years are part of what's causing the gap to widen. I would expect it to narrow, unless the retirement rates continue to be quite high.

J J Jelincic:

But we should, I mean, we're going to see a continued wave of retirements for the next few years. But then given the population, shouldn't we see a serious decline as we tend to leave? Employers tend to hire in waves, and then go on hiring freezes, and then hiring waves.

Allan Milligan:

Yeah. Well, I guess it's very difficult to gauge that type of thing. What we do know, we do know that the employer contributions are increasing. And my, you know, I would expect employer contributions to increase faster than the benefit payments, unless we get a very significant, you know, wave of retirements. More, you know, I would expect to see that gap narrow. At least in relative terms. But I, you know, I'm a little bit cautious to say anything absolute like any actuary.

Farouki Majeed:

Thank you.

George Diehr:

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

Tony?

Tony Oliveira:

Yes. I was just asking, do I have to address now, but I think part of the risk analysis based on that differential as you progress is a direct and ongoing conversation with Allan, which I know you will do, because when I was writing a very lengthy research paper and Allan was one of the people that I interviewed, was said that it's really determined as far as the amount of contributions, really based on actives. There's a small percentage on, in other words, he doesn't really into the future how many people will or will not be hired. One of the considerations should ... I think should be taken in a certainty across the United States where they're talking about the possibility of a million local government employees, those positions being eliminated through efficiency or otherwise. Is that I would ask, I hope not, but I would ask that as you go on Allan's going to have to look and share with you, based on that premise and change of the amount of employees that are in local government, change in formulas, how that changes, and possibly the change in the types of formulas. If, in fact, local governments started all of a sudden reducing their defined benefits and going to a hybrid DC models, what does that do? I think you need to have that conversation because that's an important number. That differential, as far as cash management and cash risk is a big issue. And I know Allan will be step and step with you, the kind of risk guy, and saying that sooner than later try to kind of figure out how that. None of us know how to project that, because all those local governments are out there independently. It's a little different than the state independently trying to determine what they will or will not do.

Farouki Majeed:

Oh. The reason that we wanted to ... out as a consideration is the fact that we are dealing with this on a weekly and monthly basis. Because we see cash running low and, you know, we've got to find a way to make sure that we have adequate cash to pay the benefits and other expenses. So, if you look at the fiscal year that just ended, you know, we had asset sales, both from fixed income and global equity, in order to meet some of our economies in real estate and private equity funders. But, on top of that, roughly about \$300 Billion dollars of that went to fund this gift in 2010.

So that is something that we are facing with, and that's why I wanted to make sure that it's something that's recognized as part of a strategic asset allocation process.

So, with that, Mr. Chairman ...

George Diehr:

Oh, yeah. Excuse me. Steve? Were you, huh?

Steve Coony:

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

No. I just wouldn't leave state employment out of that mix. You're looking at California, I think, I think Tony's right. We should be looking at an assumption, just among the possibilities, an assumption that there is a, we should stair-step what happens if we have a relatively permanent decline in the number of contributing active employees over the next ten years. I think we should take a look at that.

George Diehr:
Okay.

Farouki Majeed:
So, in conclu ... Yes, Mr. Chairman?

George Diehr:
Would you go back to?

Farouki Majeed:
Yes, sir.

George Diehr:
I think it was back two slides?

Farouki Majeed:
Yes.

George Diehr:
One more. Okay. So, something's wrong with this slide. The growth is on one axis and inflation is on the other, and then you have falling and rising. So, it doesn't, just doesn't read right.

Farouki Majeed:
Yeah. Yeah. It's ... okay. So.

George Diehr:
Will you? So which, which one is the, which one is the hori ... is the vertical?

Farouki Majeed:
I think we'll just have to look at, huh. So, for example, what we're intending to show is that those assets that are in the top left quadrant.

George Diehr:
Yeah.

Farouki Majeed:
They have high end sensitivity to growth. And on the rising growth and moderate they perform well.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

George Diehr:
Oh.

Farouki Majeed:
And the falling growth environments they don't. So, then under falling growth environment the only assets that sort of hold up are nominal government bonds and some of the inflation link bonds and so on.

Then we have more detail discussion of this coming with Lorne's presentation. But, if you have an inflation ...

George Diehr:
I ... I, okay.

Farouki Majeed:
Or, rising. Sorry. A rising inflation scenario, for example, the only assets that perform positively under that environment are commodities and IB's.

George Diehr:
I see. Okay. So, if I've got a rising growth and falling inflation, I sort of have, I pick from the two?

Farouki Majeed:
Yeah.

George Diehr:
Along the?

Comment from male panel member (unknown):
There's two columns more than the matrix, I think.

Farouki Majeed:
Yeah. Yeah.

Comment from male panel member (unknown):
They're two discrete ...

George Diehr:
I, I, I guess I thought I would, I could read it as all four possibilities.

Farouki Majeed:
No. You've got to look at ...

George Diehr:
So.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

Farouki Majeed:
... each quadrant separately.

George Diehr:
Yeah. Yeah. And then the, but, if I haven't. So. All right. And then I sort of combine if I have rising growth and falling inflation, I look across those two and see what ...

Farouki Majeed:
Yes. Yeah.

George Diehr:
... at some mix of those somehow.

Comment from male panel member (unknown):
Better do a mapping.

George Diehr:
Yeah. Okay. Sorry.

Farouki Majeed:
Okay.

George Diehr:
Conclude.

Farouki Majeed:
No problem. So, you know, this presentation touched on a number of different elements and issues here. But we wanted to lay these out just so you understand that there are a lot of considerations that the committee should factor in making this decision, both for the asset classification as well as ... portfolios.

And, primary among them is risk. What is the bullet risk tolerance? How much risk are you willing to take with these assets in order to meet these long term goals? And the capacity to take that risk, as well.

In future years that may or may not come down if, depending on the age profile of the members. Expected returns in my view come after that. Risks are primary. We need to understand that there are potential risks in the forecast that we have. Depending on the economic scenario that could change. And there are many in defense other factors like the liquidity and income and so on.

So, with that it passes on to Michael and, and then to Allan. I apologize that we may have given you just a little bit of time here.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

Michael Schlachter:

Yeah. Well, is ... or are we going to skip around?

Farouki Majeed:

Uhm.

Allan:

I was told that you've got it from here.

Farouki Majeed:

No. We, we ... Yeah. All right. Wilshire is next and then Allan.

Michael Schlachter:

So, if you skip over the PCA Section behind the next yellow page we'll come back, obviously, to PCA after, after I'm finished.

George Diehr:

Blue. Blue for us. Yellow for you. It's blue.

Michael Schlachter:

What's that?

George Diehr:

You have yellow. We have blue.

Michael Schlachter:

Oh, I'm sorry. I have yellow. It's the new contacts. I guess I can't see colors anymore.

So, beginning on Page 2 of our presentation there are three different things I wanted to go through in our books, in our presentation. One is some history about your asset allocation. Secondly, is some discussion of asset allocation and bucketing and the impacts of diversification. Allan has a lot more comments about sort of the basics of asset allocations. So I won't focus too much on that. And then finally I want to talk about a study that we do every year about large state plans, just so you can see some pure data. And I'll go through all of these relatively quickly because many of them are just summaries of, that you've seen over the years.

Beginning on Page 2. This chart, Farouki showed you a few minutes your asset allocation targets over time. This is your actual dollars as allocated, as invested over the course of time. In the next several slides I'm going to walk through are the actual dollars invested. That's, there's a bit more variation in the dollars day to day and year to year than there is in your policy targets. The point we're trying to make here is a bit more valid, a bit more obvious with dollars invested versus just your policy targets. But, if you look at where we began about ten years ago,

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

this goes back as far as the chart on the previous page, at least, you were 70% allocated to equities. AIM was, it says no AIM. AIM was part of equities. It wasn't broken out separately yet into its own asset allocation. And what you can see is that, as Farouki talked about, the vast majority of your risk, actually 89% of your risk came from equities. Makes sense. Same as some of your assets are in equities. So the line share is in equities for risk perspective. But one thing I do want to note is you can see is some text added to the left of the bottom chart. 91% of your risk came from assets you're currently calling this growth bucket. So just keep that number in mind, 91% of your total risk came from growth related assets. Which we're calling equities of all types, private and public, foreign and domestic, and real estate.

In 2000 we shifted just as obviously the market had begun to fall because of the NASDAQ bubble decline. Equities dropped 6%. Fixed income increased 6%. You can see that the risk though from equities is still 85% of that blue chart. And the risk from the growth bucket is now rounding to 88%. So despite a sizeable change, I mean, a 6% shift from equities to fixed income sounds like a sizeable shift. And for clients when they make these asset allocation decisions every three years, they move 5% and they say, wow, we've moved 5% from asset classed to asset class, it's a huge step for us. As you can see, it makes very little difference from a risk perspective and from, again, that growth bucket perspective. You're still right around 90% of your risk is still macro economically growth related.

J J Jelincic:

Does that have to do with the fact that our fixed income portfolio has had a very high correlation to the equity portfolio so it's had the same kinds of risks?

Michael Schlachter:

Well this is actually just up with the fact that equities are so much more risky than fixed income. This does not take into, this looks at a fixed income from an index perspective. So the fact that your fixed income portfolio, like with many, has a higher allocation to credit, or high yield over the course of time, would be on top of this. This is, this treats fixed income as a non growth related asset. Which, as you said, certainly in '09 was, or, in '08, was not the case at all. So that would actually make it worse if you considered something like the credit aspects in your portfolio.

J J Jelincic:

Okay. So the risk bucket is just equity plus the real estate?

Michael Schlachter:

It's just some things you're now calling these growth assets under the construct Farouki talked about a few minutes ago.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

Looking at Page 5, AIM was finally broken out. Equities are now down by 7%. Again, we're talking 88% of risk coming from that growth bucket. So we're making meaningful changes here. Six percent out of equity, 7% into AIM. And that growth exposure, a growth bucket exposure number does not change. Really. I mean, one or two percent really in year after year after year despite these dramatic changes. 2004 we're back up 6% in equities. Again, 92% of risk is coming from that growth bucket. And, again, north of 80% of all risk is coming from just public equities. More of the store as you're going to see as we go from class to class, from year to year to year here is you are, despite all the changes that you're making, despite the policy changes, all the asset allocation discussions, you are tremendously linked to the macro economic environment.

So, as we look forward, there were some comments a few minutes ago about what we see going forward. What does a ten year horizon look like, the 50 year horizon and the 12 month horizon look like? Bear in mind that box short of any major asset allocation change, you will be obviously very heavily tied to what happens in economic growth over the next year or two. And, again, regardless of what decide today or tomorrow, or December, unless, again, you make some radical shift in your asset allocation to accommodate potential shortfalls in the equity markets.

Looking at Page 7, this is 2007. We've added ILAC for the first time. ILAC is viewed to be a tremendous diversifier to equity risk. It was a great way of, again, taking down hopefully your exposure to the economic environment and still a 90% of your risk is coming from that growth bucket, 71% is coming from public equities alone. You have 27% in fixed income in 2007, which is less than 10% of the risk in this portfolio. Everyone thinks that fixed income has this great big safe anchor within the portfolio. It's contributing very little in risk, but at the same time it's taking away very little risk. Equities and growth assets predominate, or dominate this entire risk picture.

Do you have a question? On this matter?

Priya Mathur:

I do. If I could? So, yes, we added ILAC in 2007. But we had a very, very nominal actual allocation. And, so, and, and even in 2010 we have a very small allocation to ILAC. Do you expect that as our allocation to ILAC actually grows in a more meaningful way that that should change this percentage coming from the growth bucket?

Michael Schlachter:

I think it depends on your definition of the word meaningful. If you're talking about a 5% allocation to ILAC, that I think is analogous to these 5% shifts we're seeing coming and going from fixed income. Plus or minus a little bit. I don't want to cause any, you know, major arguments about ILAC versus fixed income. But these are fairly risk controlled assets. Some small fractions like that will have

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

some moderate impacts, but it's not going to undo this dramatic impact you have from equities. If ILAC was to move to 10 or 15% of the portfolio that would begin to really move the needle, assuming that money all came out of equities. Now the flip side, of course, of that is ILAC is going to get you CPI plus a few percentage points. It's not going to get you eight. So, how do you keep the actuaries happy with that kind of an assumption? But, yes, if you were to make a meaningful shift, a very meaningful shift into ILAC, double digits or more. Then I think it would begin to make some impacts here. And you're seeing on Page 7, I'm sorry, Page 8. Now you're up to 2.5% in ILAC. AIM is, however, at 14%. This is right before this meeting in 2009. And, again, 88% of your risk is coming from the growth bucket. Finally, you really begin to bring equities back up again to 50%. This is in 2010. This is as of year end. On Page 9. And, still 90% of your risk is coming from the growth bucket. So, the point of all of these is not to keep beating the same drum. But it's, you've made some pretty radical shifts. New asset classes, breaking out AIM, ups and downs in the equity market, and yet that exposure you've had to the growth environment has been 90%, plus or minus 1.5% for the last 11 years.

So, we talked about these risks in the portfolio. There are some more risks we're going to talk about in a few minutes that are beyond what you're probably going to discuss today and tomorrow. But it's very important to bear in mind that regardless of what you pick, from the decision factors or planning for the future with the asset allocation targets, you are incredibly tied to the overall growth environment. So, if there are concerns about that, if that is a major concern of this board, beyond even the tactical shifts that Allan talked about, how do you mitigate the impact of the fact that you have such a tremendous correlation to the macro economic environment over any short term foreseeable horizon.

Let's skip the next couple of slides in the interest of time here. You actually can just jump to the entire next, to a page, uhm. I want to save some time for Allan here at the very end. Move to Page 16. These are the risks that plan sponsors need to consider. And these are risks that you should have in the back of your mind. Mr. Olivera, Mr. Jones have a bit of a debate about whether we should be qualitatively focused or quantitatively focused as we look forward. As you look at this process, again, I think it's very important to bear in mind that the decisions that you make, and have historically made as a board for asset allocation have revolved around things like, again, the decision factors to be used tomorrow, looking at funding rec. levels, contribution levels, and those kinds of things. And that's very, very important from the economic perspective of CalPERS as a viable entity.

The one thing you're not considering really are the risks listed on this page. So, I you are concerned about inflation or deflation, if you're concerned about liquidity, interest rate risk, those should be explicitly considered, at least in your decision making process. I'm not quite sure how you change the decision factors overnight to include these things. But I think these need to fit into the back of

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

your minds that as you pick an asset allocation mix, liquidity was a major cause of what happened to this portfolio. And, many portfolios over the last couple of years. How do you guard against liquidity shocks again in the future? It's difficult to always want to fight the last war. Liquidity will not be the cause of the next calamity, but, it will be a compounding factor. If the result tomorrow makes you more illiquid, or, less liquid, that will be a compounding factor the next time we have a crises.

We talked about climate risk, PR risk, political risk, all those kinds of things that have been discussed so far this morning need to be considered at least in the back of your mind for asset allocation, even if they can't be explicitly considered when you actually pick the asset allocation. So, as we have every time we've had this meeting every year and a half or three years, I strongly encourage you really to think outside the box beyond simply just the asset allocation proposals that are being made to you, to really consider these risks and what it means to CalPERS if the asset allocation that you pick, which might look great from a funding or contribution perspective, has imbedded within it many of these risks that can still face us.

The question came up a few minutes ago, earlier, about what lessons have we learned? I think Mr. Cooney asked it. What lessons have we learned from this crises? What great things are we taking away? I think it's also important to bear in mind what lessons did we not learn? What are we building into this portfolio that becomes a risk? As Farouki mentioned, many clients have begun to break out treasuries to liability hedge over the long term. It's a great way of protecting your contribution volatility. The problem is treasuries are currently around 4%. If rates begin to rapidly spike everyone thinks they have a wonderful liability hedge built in, but in a rising rate environment, that becomes the next source of a major loss by public pension plan. We invested in treasuries, the safest thing on the planet, and it lost us 40% because rates spiked and prices fell. So, by learning a lesson from this crises and thinking about your long term liabilities and thinking about the volatility of contributions, you've built the next bomb into the portfolio.

So it's very important to think about the unintended affects, unintended consequences of the decisions that you make in trying to hedge some of these risks and which risks you're actually inviting as you hedge those out, or guard against those risks.

Tony Oliveira:
Michael?

Michael Schlachter:
Yes.

Tony Oliveira:

CaIPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

Along that line, it was mentioned to Joe this morning, there was a long conversation, Bloomberg today at my three hour ride up here, about the QE-2 affect on pensions because it could diminish the return on 30 year bonds quite substantially. Where do you put it on that scale there? Is it, is it in the interest rate risk, or where?

Michael Schlachter:

Interest. That would be an interest rate risk. Yes.

And, to some extent it would also be inflation risk eventually as well. If, if QE-2 has the hopefully intended consequence of priming the pump, finally getting the economy roaring. The question is will it spark inflation and fast will the fed move to tame inflation given it's taken them so long to get the economy going again.

So you see you've got two risks right there.

Tony Oliveira:

Okay.

Henry Jones:

Let me, I want to ...

Michael Schlachter:

Go ahead.

Henry Jones:

A quick question. And I ask Joe this question almost every month now about deflation. So, with the QE-2 does that mean that the deflation concern takes a back burner? Or, it's kind of off the table as we go forward?

Michael Schlachter:

I think it's always a concern. Our accounted perspective is it's still a 20/30% probability that deflation can happen. I think you wouldn't see the fed move as aggressively as they did. QE-2 is bigger than many expected it, about a \$100 Billion dollars, but that's no small potatoes. That means the fed is concerned about deflation. The fed is more concerned about, again, giving the ball a real strong kick than watching the economy begin to sputter. So, certainly, they're concerned. And if they're concerned, I'd be concerned.

Did you want to comment, Joe? I saw you lean forward there, so?

Joseph Dear:

Hadn't really changed since the observation I made before. This is really extraordinary moves by a central bank to try to convince the investor community that they're serious about bringing the rate of inflation up. I mean, it's one of those things that makes your head spin when you think about how it compares to

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

before the prices. So they must be seeing something that convinces them that dramatic actions require to prevent deflation. So it's got to be a real risk, or the fed wouldn't be doing what they're doing. But then it becomes a judgment about how successful the quantitative ... be. And what will the price of the quantitative ... be if it is successful? It could spawn the seeds of another crises, and inflation or dollar devaluation crises in preventing the deflation.

But as we discussed, Mr. Jones, deflation is such a terrible consequence for everybody. But it is truly something to be avoided if possible.

Lorne Johnson is the next section after the break. He's going to talk about how we want to think about different economic regimes and he'll touch on that in his presentation.

Farouki Majeed:

May I make one point on what Michael just said about the risk in allocating to nominal ... bonds as a separate strategic asset class. Now that's something we are pretty mindful of in the sense that rates are at historic lows and there is a reasonable chance that down the year as inflation spikes, these rates could spike. So, we are not proposing that you allocate a huge amount there in order to exactly match your interest rate rates. It's just the framework that we wanted to create. And you will see in the asset allocation sample that is seen tomorrow is that the allocations are constraint so that, you know, if you were to adopt this framework, the allocations under the asset mixes that you have are not large. So we can discuss that tomorrow. Thank you.

Michael Schlachter:

Obviously, I'm perfectly happy discussing any of these pages you may have questions about. But in the interest of time I'll skip to Page 18 briefly. We have listed a number of assets, categories here, asset types here. And the previous page shows where a broadly expanded version of the utility bucket, the bucket list, what it would look like were you to begin thinking about even things like Dr. Maritz (sp?) of Farmland I see is on this list under inflation protection. So, we're going to begin thinking about other assets, again, beyond what's included, at least for now, as we continue to evolve this process forward. This is one categorization.

Page 18 gets to the heart of the comments I was making a few minutes ago. As you consider individual risks, rather it be inflation risk, or deflation risk, or liquidity risk, these are the roles individual asset classes can play. So, if this discussion evolves into one of we are very concerned about X, how do we protect against X? I encourage you to use Page 18 as a reference to think about what asset classes could be used to guard, hedge, protect, mitigate the effects of whatever that risk acts as we move into the actual asset allocation decision part of the workshop.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

For the next section I'll flip through. Just talks about, it's an annual study that we do looking at all state systems. There are more than 120 state systems in the U.S. This is again an annual survey that's published. The data is current on about I think it's fifty, high fifties, 56 or so of these systems. Surprising that so many states pension systems in this country are rather opaque in the data that's actually a year or two old. But at least 50 or 60 are actually current. But certainly the trends are all very similar. And, but the point of this is to give you some illustration of what your peers are going through and also to pass along the message that you're not alone. The funding crises that you're facing is the same as pretty much everyone else, if not worse to many other places. And there are no easy solutions. Nobody is expecting to earn their way back out of the shortfalls overnight.

On Page 20, looks at the distribution of various pension systems and you can see that on a funding basis on the market value of funding basis the trend has just been simply downward ever since '07. We've had a heck of a bounce, obviously, over the last six to 12 months. Especially the last two months. Those numbers we'll begin to see next year. So there is some, hopefully some positive spike at the end of this trend. But, certainly over the course of the credit crises into 2009 when many of these systems were forced, again, ending in 2009, the trend was very, very negative.

Page 21, essentially the flip side of the previous page. But the 57 plans that have current data, this is the percent that are under funded. So you saw that distribution trend downward on the previous page. What's the bottom line, 100% of plans with current data are below a 100% funded at the present time. So, it's not uncommon, obviously. In fact, it's everyone. It's unanimous that everyone is actually currently underfunded, given what's happened over the last few years.

Page 22 shows the average asset allocation, which is actually very similar to yours. You have a higher allocation to private equity of the many other plans. Real estate is within a few percentage points plus or minus non U.S. bonds very similar, U.S. bonds very similar and global equities very similar. So, with the exception really of your larger allocation to private equity, you are very similar to most of your, very similar to most of your peers among, again, large state plans.

Farouki Majeed:
But the ...

Michael Schlachter:
But the difference is that, yes, most plans still break out U.S. and non U.S. equity and maintain a home country bias. So, to the extent that you've moved more quickly than many of your peers, and in many cases actually helped your performance, this could be the elimination of the home country bias. That's one way in which you are different. The equity way, give or take about the same. But, the way you actually break it up is very different since 2007.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

Page 23 shows how these, how the average plan has changed. And what you can see really is that U.S. equities have dropped substantially while non U.S. equities have come up. So much like you moved away from the home country bias, and few others have gone all the way, at least they're making some positive shifts towards non U.S. allocations. So, to the extent that trend continues, that will again act as a wind at your sails giving you are already overweight relative to your peers and non U.S. equities. Again, you have a market weight relative to peers. You also can see that private equity has been a very positive trend by clients, or by state plans over the last six years.

And what's been the funding source of all of this? Well, it's been bonds. Across the board. Bonds are down 80% for U.S. bonds. That has been the funding source. It was a funding source here as you moved into many other asset classes. It's a funding source everywhere. Everyone's trying to reach for more return and so you get out of the stuff getting you 5% and you hope that new stuff gets you 10%. That's been the plan pretty much every place.

Farouki Majeed:
Yes.

Priya Mathur:
Sorry. A quick question. I recognize that this is what we do and plans all across the country do. We compare ourselves to our peers. But I think there's a real danger also in comparing ourselves to our peers. And that is through this lemming effect, right, that we all sort of do about the same things so that we can point at everybody else and say, see, we did just as badly or just as well as they did. And there's a real risk there that there might be some completely other way of looking allocating our assets that we have some conviction that we want to do it that way, that makes a lot of sense. And I think we need to, we need to figure out how we can, how we can do that. Because that might mean that in some years we perform worse and in other years we perform way better, and, and we need to be willing as a board, as an organization to make decisions that are consistent with convictions or beliefs that we might have.

Now the question is, what are our beliefs and our convictions? Which I've been talking to Joe about, having a conversation about that. And I know he's working on it. But, so I just want to raise that caution when we talk about ourselves in a universal peers.

Michael Schlachter:
And that's an incredibly valid point. You're absolutely right. The fear is we stick our necks out, we're radically different, something goes wrong, and we are the, the fools who picked that. And we are berate at the crest for doing that. But when you're right you're right and nobody gives you credit for being right, unfortunately. But you're right. You need to make your decisions based on what

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

is best for CalPERS. And this is supposed to be illustrative. This should point out what your peers are doing so you understand the context of what's happening in the universe. But, certainly this should not guide your decision making process. In things like global equity you've obviously moved well before your peer group has and that served you very well. But you're absolutely right. You need to make decisions based on your gut feeling, the quantitative, the qualitative, everything and disregard everything I've been saying about your peer group and what the survey says. Absolutely.

Farouki Majeed:
Okay.

Henry Jones:
Can I?

Farouki Majeed:
Go ahead.

Henry Jones:
Kind of related to the previous question and it's back to your chart on 20. That hash line that's going across, is that somehow the perceived adequate level of something that's going across at 85%? And I know from an actuarial point of view, you know, they say if you're 85% funded, you're in good shape. So is that what that line represents?

Michael Schlachter:
That, that's basically it. There's no magic 85. I think it's just kind of rule of thumb where people are generally feeling pretty healthy. It just shows that scrappily across the page. That's all.

Henry Jones:
So how does that then translate to our policies? If it, are we suggesting then that we should be thriving to get the only 85% funded? In the policy decisions we make? Or, are they unrelated?

Michael Schlachter:
They're unrelated. I mean, really ...

Henry Jones:
Okay.

Michael Schlachter:
... it's, I think it's when you're 85% one good years market return can get you back to a 100.

Henry Jones:

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

Okay.

Michael Schlachter:

Or, one, a couple of years, you know, of small contribution increases can get you back to a 100 very rapidly. So it's sort of, it's you're within essentially a, you know, a standard deviation of a 100% funded. And that's not exactly the math, but you know what I'm saying. You're relatively close. But then you break outside of that and you begin, you need to begin thinking about bigger changes, large asset allocation changes, larger contributions, benefit reductions, whatever it is. Or, on the upside you have extra cash you can either put into a surplus protection or increase benefits, things like that. It's just that's sort of your, again, within a year or two, certainly within a three year timeframe most plans look at asset allocation. You're well within that period of volatility and so it's essentially close enough. When you break below that 85% line then you will need to begin thinking about how do we, the patient is, the patient's not dying, but certainly the patient needs some medical care to make sure we can get healthy again.

J J Jelincic:

The, on, if I can go back to Pria's point? The, within the investment industry there's a lot of closet indexers. Because quite frankly you take a career risk by making a investment decision. You know. If you follow the herd you don't get hammered too badly. But, you know, if you really move by your convictions, then you're running a career risk. And that's part of the problem the industry has. And one of the things I think the board needs to think about is if we want to make the best investment decision and not deal so much with the career risk, you need to think about what you did with the incentive compensation, because that certainly leads in the opposite direction.

Farouki Majeed:

Okay. So. Is that it, Michael?

Michael Schlachter:

I think so.

Farouki Majeed:

Okay. So we'll turn this to Allan.

Allan Emkin:

I'll get you out of here on time. I promise. But, literally, Pria and J. J. just did my job for me. Because what they basically said was we need to look at things differently in change. And the whole purpose of this presentation and this study is to change the way you did business. Because the old way of doing business was just looking at two variables, risk and return, expected return and share and deviation. As opposed to this whole other way of looking at allocating assets. And, so, in my opinion Pria this is directly on your point. If in fact you change the way you look at asset allocation you will be accomplishing exactly the objective

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

that you raise. But you have to recognize if you do so you'll be assuming what we call maverick risk. And that's not the western movie from the sixties that some of you might remember. But it means that you'll be different. And if you're unwilling to be different, then you want to stay with the way you were doing business in the past. There's nothing wrong with that. And, most other investors would not criticize you. But that's the issue before you today. And the issue really is the framework. How do you look at asset liability management, what is the framework? And your ability to consider change. And, today will be a success and tomorrow if you get actively involved in the decision making and don't have a bunch of very good looking talking heads using power point presentations and you listening. Now, this is not a board known for being retiring or quiet. But I encourage you to be even more inquiring and more challenging, because this is the big decision. The rest of it, you know, Joe likes to move things here and there, that's at the margin. The big decision is how you allocate the assets.

Do you know how this thing works for us?

Andrew Junkin:
Sure.

Allan Emkin:
Nice. Nice and young people.

Andrew Junkin:
I'm going backwards.

Allan Emkin:
Old people.

Farouki Majeed:
Go onto the right.

Andrew Junkin:
That's what I was using. Was I holding it upside down?

Priya Mathur:
I'm sorry.

Michael Schlachter:
Is that the page you wanted?

Allan Emkin:
Effectively, what we're trying to do and what you've done in the past is you combine the assets, you look forward and you see how they interact with liabilities. There was a long period of time when that was fun. Because the

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

assets kept growing more rapidly than liabilities and it was fun. Well, guess what? We went through a decade where the opposite happened. And it impacted things that particularly those of you who were involved on the benefit side are addressing that you never had to address before. And, effectively, 2008 was a wakeup call. We really do have liabilities. The asset there, are there to fund those liabilities. What are the risks associated with those liabilities and how did the assets interact with those liabilities? That's what this is about.

Andrew Junkin:

I'm trying. I want to get it to.

Allan Emkin:

Here we go. Okay. This is the Emkin PCA version of the actuary. On the left hand side you have contributions. And the current funded status of the plan and the current income from the plan. And then you have the faucet which is benefits, which go out. That's on the left hand side. And you have time. And the one thing you have that's different than most of us as individuals is a 40, 50, 60 year time horizon. You, this institution has to exist way, way into the future and that's very, very difficult, where people who's lifespan will not be that long to conceptualize. And we all look in terms in a very personal way. Many of these benefits will be paid after some of our children will no longer be here.

It's important to keep in mind that the first time we had these sort of buckets was the first asset liability workshop. At that time, Bill Sharp's wife drew a bathtub. I couldn't figure out how to get a bathtub on power point, so that's why I have these cylinders. But, effectively, it was the same concept. The money goes in, the money goes out. But there's some uncertainties. And it's crucial to you understand the uncertainties. Sadly, the contributions are uncertain. You do not know exactly how much money you will get and when you will get it. Can make some assumptions about that, but you don't know. That's uncertain. There's a level of uncertainty.

The investment returns are even more uncertain. You do not know what next year, three years, five years, or ten years will be. And anyone ten years ago who told you you would get no return from publicly traded equities for a decade would have been laughed out of the room. You don't know. So you are trying to manage uncertainty. And, the one thing you have a very high confidence level in is what your costs are going to be. Because you are contractually obligated to meet those liabilities. So you have two things that are variable. And one thing which is almost a constant. And you need to try to marry those two. And you take a look at that right hand bucket and those are the things that you should be concerned about that we believe you should address through this process.

Andrew Junkin:

She's driving now.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

Allan Emkin:

Nice. Nice. The key here, and this goes to the question about quantitative and qualitative. So, Mr. Jones, this is directly to your issue. If you use the right hand side, I would argue that those are qualitative macro policy decision factors. And these real people could argue that they're also quantitative, but I think for most people, particularly lay people, those are qualitative. And those are the areas where you need to use common sense. Do we want assets that have growth income, inflation orientation, liquidity, etc.? If you do, it's a different way of constructing a portfolio than saying we want 20% X asset, 25% Y asset, etc. It's a different way of looking at the world. And the most important single factor in that is common sense. It's not using a statistical model. That's an input. It's not using academia. It's you based upon your knowledge and experience using common sense. Because I really don't believe you need a PhD to solve this problem. And no one will know if you're right for 10, 15, or 15 years. It's very, very important to keep that in mind. You might be right for a year, or two years, or three years, it could all blow up. The question is, are you developing a strategy, a plan that's going to withstand time? It works for me.

All right, turn the page, please. Okay, thank you.

Why would we urge you to reexamine the framework? It's because a whole bunch of the risks that we thought didn't go up and down together and in 2008 we found they all went up and down together. So the only place you had any growth in 2008 was gold and treasury bonds. That was it. Everything else was wrong. Including most of your bond portfolio. All of your real estate portfolio, which was assumed to have next to no correlation to the equity markets. And what we found is not only do the asset classes perform differently than we assumed, but then that gets compounded by the way we structure the asset classes. Lessons to be learned. And, that's one lesson. If you have an asset class that's supposed to be low risk, income oriented, you don't gear it to the one. Good lesson. We live in a much more volatile world. We as a firm do not believe that that is going to change. In fact, we believe that will probably continue to increase. The flow of money across the oceans is now more rapid than anyone could have ever dreamed of. And someone can wake up in the morning in Beijing or in Beirut and make a decision and move capital markets instantaneously. Is that ... liquidity and that amount of ability to move money. That's going to create more and more volatility. Your portfolio needs to address that.

Go to the last slide, please. Thank you.

After 2008 people talked about something they hadn't talked about before, tail risk. What happens in those very, very unusual circumstances? And, in fact, there was nothing designed to address those one in 20, or one in 50, or one in a 100 events. This new way of looking at asset allocation attempts at least in part to deal with that. Keep in mind that you had two hundred year events in a ten

CaIPERS ASSET LIABILITY MANAGEMENT WORKSHOP
SEGMENT 1

year period. A likelihood of that happening is very unlikely. We don't believe that was a once in a lifetime experience. We believe that level of volatility both on the downside and the upside is probably going to recur for the foreseeable future.

It's all right.

Priya Mathur:

Sorry to interrupt you right there. I have to.

Allan Emkin:

Flow the capital. Just knocked it over.

Comment by male panel member:

Go with the money.

Allan Emkin:

And that requires, in our opinion, you to consider new ways of doing things. And, if you do things differently, you will be different. And you have to decide if having a strategy that creates you at least beginning to be different than your peers is the right thing for you. But, the one thing to keep in mind, the old way of doing things, using traditional asset liability management, using traditional mean variance got you where you are today. And the question is, do you want that to recur? Okay. I got you back on time.

Priya Mathur:

Because I do have a question if I could, Mr. Diehr?

George Diehr:

Okay. Yes.

Comment by female panel member (Pria?):

Of course. A couple of board members have mentioned the interplay between our performance and incentive comp. Which I think is something we haven't really fully grappled with. We also have sort of this bifurcation in terms of the way we measure performance and certain benchmarks that we use for asset allocation and other benchmarks we use for incentive comp. But, how else can we ensure that if we choose a different path on an asset allocation basis, that that sort of translates into the actual management of the money? I mean, as a board that is not involved in the day to day management of the assets. And I guess I would turn this also over to you, Joe, because obviously you're the one who's going to be leading that effort. But, but, how do we ensure that this isn't just sort of this one time decision, but that it actually manifests?

Joseph Dear:

Pria, actually back up one more step. You were talking about investment lease and how they undergird this. And if you actually think about some of the

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

discussion that's presented, we didn't call them investment beliefs, but the discussion you had about, as the capital market lie, that relationship of low risk to high risk, is it going to return to its historical condition? That's a really important investment belief. So, and, and we have said, and the consultants agreed that, you know, we do think over the long term. And then Allan made a very important point about there may be intervening periods in which that relationship may not hold the way it did before. And that creates the opportunity for tactical or dynamic judgments about the current state of markets. In a moment we're going to hear about how to apply that to different economic regimes. Now how does this apply to incentive compensation? Well, one of the ideas that was presented in the review that the performance and comp committee went through was tying performance compensation not to excess performance above benchmarks, but to excess performance above risk allocated to the manager. As we move this framework towards a risk centric basis as we develop the measurement tools to really assess that, it creates the opportunity to shift the incentive comp system to a more risk base to tie it together, and that's probably the most important thing to do.

The other thing is just to get rid of incentive compensation altogether and just say we're going to, you know, pay based on a salary, and that has it's own set of plusses and minuses in terms of who goes and who stays and who's attracted and who gets pulled away in terms of the skill set of the staff. But, it's a really important question to tie it together, but it's not a question we have to answer today. Today's question is really can we get a, can we take this framework? And the question that came up, this judgment question. It's really easy to say we're prepared to take maverick risks in the pursuit of performance excellence. We're in pursuit of our fiduciary duty to see that our system meets the objectives. Except for it's entirely different when that strategy is under attack, because if you follow the crowd, when you're wrong everybody is wrong with you. And for most investment programs, public or private, but particularly for public ones, you're really way better off to be wrong with the crowd. Because if you're wrong and you're alone, then change is great praise. There's only a limited amount of time that you can withstand that attack before a board or the staff. Or, you know, the staff gets fired, the board turns over, people lose heart. And, so, part of the test of our organization is how strongly we believe that a different approach is required. And that's a judgment question. That is a fundamental judgment question. How much risk are we going to take in the investment portfolio, but how much risk are we prepared to take as professionals, as trustees in terms of reputation? That we have analyzed things with as great a care and consideration that we can, with as much application of current theory, and data, but at the end of the day we apply our judgment to that. And are we prepared when we've done all that work and we've done our own thinking, to say this is what we believe and this is what we're going to do. And that's partly the big step we're trying to take today. If we do that and succeed, then we'll all be amply rewarded here or someplace else. We'll be rewarded in the most important sense, we will have fulfilled our duty to the people we work for.

CalPERS ASSET LIABILITY MANAGEMENT WORKSHOP SEGMENT 1

And so I think we're taking an important step away from the crowd. But we're not trying to take it all in one day, and all in one leap. But, to relentlessly apprise this, our own ability to think, to consult with experts, to get these views, and to say that funding goal is so important and there are better ways to get there.

Priya Mathur:

We don't need to exhaust the discussion of implementation today, obviously. We're here to make a strategic decision. But I presume that if we make a decision to go with more risk focused allocation, that will be reflected in the annual planning that the investment office does, and we will see sort of more concretely how that is going to ripple throughout the operation.

Joseph Dear:

Exactly. You're, you're, we'll be coming back to you and asking you more, rather than allocating to equity or fixed income, to allocate risk. How much total risk in the system and then how to allocate that subcomponent? And then try to tie the investment performance and the incentive compensation within that risk framework.

George Diehr:

Tony has the last word.

Tony Oliveira:

I begged George for a 15 second. I just want to remind us, wearing two hats here, well, three, as an economist, a fiduciary, and a local government elected official. The one risk that you must also address, always in the back of your mind is Allan's top bucket up there, the radical change away from risk, and the amount of increased contribution that that would cause on local governments is a risk in itself, that that would cause radical change within government itself to do something about that, because they could not stand those increases. So, for those out there that sit down in the far fields and say we should take all of us, pensioners should take radical changes and reduce the risk, do not work back in the factors the pressure that we put on local government, it creates a greater risk, because then in fact they would only have a choice to substantially reduce the workforce in such we didn't have that viscous cycle. So, I'm glad, and I feel very good about being on this board. We make our decision based on our fiduciary responsibility and not political pressures. So.

George Diehr:

Okay, with that, 15 minute break.

End of Segment 1.